

PUBLIC HEALTH REPORTS

VOL. 53

JANUARY 7, 1938

NO. 1

STUDIES ON CHRONIC BRUCELLOSIS

III. Methods Used in Obtaining Cultures

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The bacteriological studies reported in this paper were made in connection with the survey of chronic brucellosis in Charlotte, N. C., which will be reported by Dr. Frank H. Robinson in a subsequent paper of this series. Fourteen patients in whom chronic brucellosis was suspected were studied. In none of these patients could a diagnosis of brucellosis be made by specific tests.

Fifteen cc of blood were obtained from each patient by venepuncture. The blood was placed in small flasks containing 4 cc of sterile 2.5 percent sodium citrate. Four flasks containing 100 cc of liver infusion broth of pH 6.8 were each inoculated with 2 cc of the citrated blood. The flasks were incubated at 37° C, two in the room atmosphere and two in an atmosphere containing 10 percent CO₂.

After 4 days' incubation, daily smears of the broth cultures were made and stained by Gram's method. If no organisms were seen in the smears after 10 days' incubation, 5 cc of the original culture was transplanted to 100 cc liver infusion broth every 3 days for 2 weeks. Original cultures and transplants were incubated for 3 weeks before they were reported as negative.

Three guinea pigs were inoculated with blood from each patient. Two were injected intraperitoneally with 2 cc each of citrated blood, and one was inoculated in the groin with 1 cc of citrated blood. The animals were observed daily.

Beginning 2 months after inoculation, tests for specific agglutinins and for reaction to Huddleson's brucellergin were made at intervals of a few days. When both tests became positive, the animals were killed. The animals which remained negative to the agglutinin and the skin tests were killed 4½ months after inoculation. Broth was planted with blood and with pieces of organs according to the cultural methods already described.

Cultures were obtained from 5 of 14 patients—from 3 in broth cultures, and from all 5 by guinea pig inoculation. The cultures were identified by agglutinin absorption according to the technique

¹ These studies were made in the Bacteriological Laboratories of Duke Medical School, Durham, N. C.

described by Evans, and by the bacteriostatic reaction of dyes according to Huddleson's method.

Table 1 shows that the cultures from 3 of the 5 cases were identified as *Brucella melitensis* var. *melitensis*. These data are in agreement with the observation of Evans, who reported that agglutinin absorption tests with patient's blood indicated that the majority of human *Brucella* infections in Charlotte, N. C., are with the *melitensis* variety.

TABLE 1.—Summarized data on the cultivation of *Brucella* from 5 chronic patients

Case no.	Cultures directly from blood	Results of guinea pig inoculation				Variety of the infecting organism	Remarks
		Pig no.	Appearance of agglutinins	Time of killing	Cultures		
5	Positive *	♂ 1	Animal died 3 weeks after inoculation.	-----	Positive	Suis	Spleen and liver showed abscesses. Cultures were obtained from both organs. Cultures were obtained from organs. Do.
		♂ 2	11 weeks	17 weeks	do.	-----	
		♂ 3	12 weeks	do.	do.	-----	
59	Negative	♂ 1	Nonspecific death.	-----	-----	-----	The only lesion was an enlarged inguinal gland, from which a culture was obtained.
		♂ 2	do.	-----	-----	-----	
		♂ 3	16 weeks	20 weeks	Positive	Melitensis	
67	Positive	♂ 1	Nonspecific death.	-----	-----	-----	Culture was obtained from heart blood. Do.
		♂ 2	13 weeks	15 weeks	Positive	Abortus	
		♂ 3	14 weeks	19 weeks	do.	-----	
107	Negative	♂ 1	Nonspecific death.	-----	-----	-----	Cultures were obtained from heart blood, liver, and spleen.
		♂ 2	do.	-----	-----	-----	
		♂ 3	12 weeks	14 weeks	Positive	Melitensis	
411	Positive	♂ 1	Animal died 6 weeks after inoculation.	-----	Positive	Melitensis	Lesions were found in liver, spleen, and lungs. Cultures were obtained from liver and lungs. No gross lesions. Do.
		♂ 2	11 weeks	19 weeks	Negative	-----	
		♂ 3	13 weeks	do.	do.	-----	

* Cultures were obtained from the joint fluid also.

♂ The animal was inoculated intraperitoneally.

♂ The animal was inoculated in the groin.

Brucella were obtained in cultures planted with blood from cases 5, 67, and 411.² In cases 5 and 411 small Gram-negative coccobacilli were seen in the original aerobic broth cultures on the 7th and 10th days, respectively. Transplants were made to liver infusion broth, and liver infusion blood agar plates were streaked with the culture. Good growth was obtained in 48 hours. *Brucella melitensis* var. *suis* was also cultured from synovial fluid obtained from case 5. After 3 days' incubation, growth was obtained from the original aerobic broth cultures planted with the fluid.

² Robinson's case numbers are used in this paper.

Blood culture was obtained from case 67 only in a transplant of the original culture. After 10 days' incubation of the original cultures, transplants were made, and in one of the secondary cultures *Brucella melitensis* var. *abortus* developed after 4 days' incubation in the presence of CO₂. The original broth cultures and the transplanted cultures incubated aerobically remained clear.

The records of the guinea pigs inoculated with blood from the 5 cases which yielded cultures are summarized in table 1. Ten of the 15 injected animals survived spontaneous death. The table shows that cultures were obtained from 8 of the 10 animals. Two of the 8 died about a month after inoculation. In the remaining 6 animals, agglutinins did not appear until the 11th to the 16th week. Probably cultures would not have been obtained from these animals if they had been killed at the end of 6 weeks, the time which is usually recommended for the killing of guinea pigs injected with suspected *Brucella* infected material.

The record of one guinea pig which developed agglutinins about 14 weeks after inoculation is given in table 2.

TABLE 2.—Record of guinea pig inoculated in the groin with blood from case 67 (inoculation made Dec. 8, 1936)

Date	Reactions to agglutinating antigen			Reaction to brucellergin
	Melitensis	Abortus	Suis	
1937				
Feb. 4.....				
Feb. 14.....				
Feb. 22.....				
Feb. 28.....				
Mar. 7.....				
Mar. 17.....	1:20	1:20	1:20	
Mar. 19.....	1:20	1:40	1:20	
Mar. 29.....	1:40	1:40	1:20	++
Apr. 7.....	1:20	1:40	1:20	++

On April 19, 1937, the pig was killed. The inguinal gland at the site of injection was slightly swollen. The spleen was slightly enlarged, with no abscesses. The lungs, liver, and kidneys were normal. *Brucella melitensis* var. *abortus* was obtained from the gland and from the blood in cultures grown in the presence of CO₂.

Twenty-seven animals, inoculated with the blood of 9 patients, remained negative to the agglutinin and skin tests. They were killed 4½ months after inoculation. No lesions were found at autopsy, and cultures of heart blood, liver, and spleen gave no growth.

SUMMARY

Brucella cultures were obtained from 5 out of 14 patients with obscure chronic disease.

The organisms developed in broth cultures planted with blood from 3 of the patients. They were obtained by means of guinea pig inoculation from all 5 patients.

Three of the strains were identified as *Brucella melitensis* var. *melitensis*. One strain was identified as *suis* and one as variety *abortus*.

A point in our technique which differed from that usually followed by other investigators was the keeping of the guinea pigs until specific reactions indicated *Brucella* infection. In one animal positive reactions first appeared 16 weeks after inoculation. Animals which failed to develop agglutinins were kept 4½ months before being discarded.

AGE OF GAINFUL WHITE AND NEGRO FEMALE WORKERS OF THE UNITED STATES, 1920 AND 1930¹

Studies on the Age of Gainful Workers No. 5

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INTRODUCTION

The fourth paper of this series (1-4) dealt with the age of gainful white and Negro male workers of the United States by occupational group for the census years 1920 and 1930. The percentage age distribution for each occupational group, specific for color and census year, was compared with the percentage age distribution of all gainful workers by forming the ratios of corresponding percentages. A ratio greater than 1 indicated for a particular census year an excess of workers in a specific age, color, and occupational group, while a ratio less than 1 indicated a dearth of workers. Chief among the differences found with respect to color were the following: (a) The larger dearth among the Negroes of both census years in the child group of extraction of minerals, and the manufacturing and mechanical industries. (b) The larger dearth among the Negroes of 1920 in the old-aged group of trade. In trade also there was in 1930 a dearth of white workers in the younger ages, while the Negroes showed an excess. (c) The large excesses among the white workers of 1920 and 1930 in the old-aged group of public service. In 1920 the Negroes showed a dearth in this age group which became a slight excess 10 years later. (d) The larger excesses among the Negroes of both years in the older ages of professional service. (e) The excesses of white workers and the dearths of Negro workers of both years in the older ages of domestic and personal service. And, finally, (f) the larger excess of Negroes in 1920 in the child group of clerical workers. In 1930 the excesses of both white and Negro workers decreased, the excess of the latter becoming a dearth.

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The question now logically arises of the behavior of the ratios in the instance of white and Negro female workers. Accordingly, the present paper will include the determination and subsequent comparison of these ratios, specific for census year, age, color, and occupational group. When it appears desirable, for comparative purposes, reference will be made to the previously determined male ratios.

The term *gainful worker* is defined by the Bureau of the Census thus: "* * * all persons 10 years old and over who usually follow a gainful occupation even though they may not have been actually employed at the time the census was taken. It does not include women doing housework in their own homes without wages and having no other employment, nor children working at home, merely on general household work, on chores, or at odd times on other work" (5). The present inquiry, like the previous ones, makes use of basic data published by the Bureau of the Census in its population reports of 1920 and 1930.

WORKERS IN DIFFERENT OCCUPATIONAL GROUPS

The white and Negro female workers of 1920 and 1930, respectively, are shown distributed among nine occupational groups in table 1.

TABLE 1.—*Gainful white and Negro female workers in the United States, 10 years of age and over, specific for occupational group, 1920 and 1930*

Occupational group	1920		1930	
	White	Negro	White	Negro
	Number		Number	
All groups.....	6,962,246	1,571,289	8,817,564	1,840,642
Agriculture, forestry, animal husbandry.....	467,013	612,261	393,844	495,364
Extraction of minerals.....	2,512	337	692	53
Manufacturing and mechanical industries.....	1,821,165	104,983	1,764,886	101,070
Transportation and communication.....	209,446	3,525	278,536	2,208
Trade.....	656,013	11,158	940,503	14,568
Public service (n. e. c.) ¹	20,812	966	16,584	930
Professional service.....	976,821	39,127	1,459,738	63,027
Domestic and personal service.....	1,390,957	790,631	1,989,480	1,152,560
Clerical occupations.....	1,417,507	8,301	1,973,301	10,862
	Percent		Percent	
All groups.....	100.0	100.0	100.0	100.0
Agriculture, forestry, animal husbandry.....	6.7	39.0	4.5	26.9
Extraction of minerals.....	(²)	(²)	(²)	(²)
Manufacturing and mechanical industries.....	26.2	6.7	20.0	5.5
Transportation and communication.....	3.0	.2	3.2	.1
Trade.....	9.4	.7	10.7	.8
Public service (n. e. c.) ¹.....	.3	.1	.2	.1
Professional service.....	14.0	2.5	16.5	3.4
Domestic and personal service.....	20.0	50.3	22.5	62.6
Clerical occupations.....	20.4	.5	22.4	.6

¹ N. e. c. = Not elsewhere classified.

² Less than $\frac{1}{10}$ of 1 percent

In 1920 there were approximately 7 million white female workers and less than 2 million Negroes; in 1930 the figures for both races showed increases, approximately 27 and 17 percent, respectively. The increases for the white and Negro males were previously found to be about 13 percent in each instance. As in the case of the males the largest increase occurred in professional service, 61 percent for the Negroes and 49 percent for the white workers. Trade increased 43 and 31 percent for the white and Negro workers, respectively; domestic and personal service, 43 and 46 percent; and clerical occupations, 39 and 31 percent. In both races the following occupational groups showed decreases: Extraction of minerals; public service; agriculture, forestry, and animal husbandry; and manufacturing and mechanical industries. Transportation and communication showed a 33-percent increase for the white workers and a 37-percent decrease for the Negroes. Thus four occupational groups disclose decreases for the white female workers and five for the Negroes. In the preceding paper decreases were indicated for the white males in extraction of minerals; and agriculture, forestry, and animal husbandry; while the Negroes showed decreases in the latter and in public service. The following percentages calculated from table 1 refer to the increases or decreases in the number of female workers in each occupational group during the 10-year period:

Occupational group	Percentage increase or decrease, 1920 to 1930	
	White	Negro
All groups.....	+26.6	+17.1
Agriculture, forestry, animal husbandry.....	-15.7	-19.1
Extraction of minerals.....	-72.5	-84.3
Manufacturing and mechanical industries.....	-3.1	-3.7
Transportation and communication.....	+33.0	-37.4
Trade.....	+43.4	+30.6
Public service (not elsewhere classified).....	-20.3	-3.7
Professional service.....	+49.4	+61.1
Domestic and personal service.....	+43.0	+45.8
Clerical occupations.....	+39.2	+30.9

When the percentages of female workers in each occupational group, specific for color and census year, as shown in table 1, are arranged in decreasing order of magnitude, it is found that in the instance of the white workers of 1920 the manufacturing and mechanical industries rank first with 26 percent, and clerical occupations, and domestic and personal service follow with approximately 20 percent each. Ten years later the white females show the same occupational groups as leading, with percentages between 20 and 23 percent, but the order of 1920 is changed, the manufacturing and mechanical industries dropping from first to third place, from 26 to 20 percent, and the clerical occupations and domestic and personal service each increasing

2 points. The Negro workers, on the other hand, show the same order in 1920 and 1930 with respect to percentage distribution by occupational group, domestic and personal service ranking first, with agriculture, forestry, and animal husbandry, second. The most striking changes that the 10 years have wrought probably occurred among the Negroes in these two occupational groups; in domestic and personal service there was an increase from 50 to 63 percent, and in agriculture, forestry, and animal husbandry, a decrease from 39 to 27 percent. In the instance of the male Negroes the same occupational groups offered the most striking changes during the 10-year period, the corresponding changes being from 8 to 12 percent, and from 48 to 42 percent, respectively.

WORKERS IN DIFFERENT OCCUPATIONAL GROUPS, BY AGE

The age distribution of the white and Negro female workers of 1920 and 1930 according to occupational group is shown in table 2. It will be observed that, regardless of occupation, the order of importance of the age groups of the white workers of 1920 is slightly disturbed by the passage of 10 years and specifically by the reduction in the percentage of child workers from 11 to 6 percent. The Negro workers, on the other hand, present the same order in 1930 as in 1920, the most important change, as in the instance of the white workers, being the decrease in the percentage of child workers (13 to 9 percent). In both census years the two races contribute 40 to 50 percent of their respective workers to the age group 25-44 years, the leading age group with respect to size in both races. In the instance of the white workers the age group 20-24 years follows in both years with approximately 23 percent; the corresponding percentage for the Negroes is 16 percent, which is sufficiently small to allow the middle-aged group, 45-64 years, to assume second place in both years with about 18 percent.

The remainder of this section will be devoted to an examination of the age distribution of the workers in different occupational groups, with emphasis particularly on the contribution of each occupational group to the child, middle- and old-aged categories, respectively.

Further reference to table 2 reveals that the white child group of 1920 in agriculture, forestry, and animal husbandry was 24 percent of the total number of white workers so engaged. No other occupational group furnished a corresponding percentage so large. The Negro girl group for the same year shows a percentage in agriculture, forestry, and animal husbandry similar to that for the white girls, and, as in the instance of the white workers, this particular occupational group ranks first. The various percentages shown for the white girl group contrast remarkably with those for the white boys. The highest percentage among the latter was 10 percent, which was

TABLE 2.—Age distribution of gainful white and Negro female workers in the United States, specific for occupational group, 1920 and 1930

Occupational group	Age group, 1920						Age group, 1930						
	10 years old and over			Percent			10 years old and over			Percent			
	Number	10-17	18-19	20-24	25-44 ¹	45-64	Number	10-17	18-19	20-24	25-44 ¹	45-64	65 and over
White													
All groups.....	6,982,246	10,706	10,040	22,320	39,221	15,513	8,817,564	6,100	9,300	23,026	41,431	17,633	2,510
Agriculture, forestry, animal husbandry.....	467,013	24,108	5,479	8,626	26,264	27,229	393,844	19,142	6,012	9,052	24,380	31,132	10,282
Extraction of minerals.....	2,512	16,322	10,709	17,396	38,455	14,729	2,389	12,428	13,295	19,653	32,803	19,075	2,746
Manufacturing and mechanical industries.....	1,821,165	16,133	11,306	19,871	37,208	14,094	1,764,886	10,700	11,069	21,107	38,441	15,694	1,919
Transportation and communication.....	209,446	14,560	18,973	33,439	29,344	3,445	278,536	6,384	14,758	31,730	39,972	6,671	485
Trade.....	696,013	10,438	10,203	20,899	43,704	13,696	940,503	5,196	8,871	18,909	45,415	19,964	1,645
Public service (n. e. c.) ¹	20,812	437	2,465	13,276	55,958	25,745	16,584	253	8,392	8,870	51,652	35,239	3,594
Professional service.....	976,821	1,237	6,815	29,358	48,489	13,001	1,450,738	587	4,863	27,447	49,137	16,359	1,577
Domestic and personal service.....	1,390,987	6,006	5,386	12,693	41,659	29,443	1,939,430	5,792	7,086	14,657	38,494	28,889	5,082
Clerical occupations.....	1,417,567	10,151	15,421	33,775	36,436	4,011	1,973,301	4,127	12,577	33,474	42,993	6,553	2,276
Negro													
All groups.....	1,571,289	13,295	6,507	16,064	44,211	17,180	1,840,642	9,330	6,168	16,250	47,099	18,810	2,343
Agriculture, forestry, animal husbandry.....	612,261	25,501	7,465	14,686	34,856	14,986	496,364	23,871	8,526	14,915	32,245	17,680	2,763
Extraction of minerals.....	104,983	11,573	8,605	20,772	47,478	9,792	53	5,660	5,660	10,981	60,038	5,661	700
Manufacturing and mechanical industries.....	3,525	7,686	7,795	19,313	50,754	12,995	101,070	5,006	6,612	18,249	54,135	14,619	1,289
Transportation and communication.....	1,188	6,014	6,829	17,435	56,284	12,567	2,208	2,547	5,672	16,067	57,563	16,168	1,359
Trade.....	36,127	4,969	3,416	16,977	51,563	16,186	14,563	2,547	4,386	12,747	54,290	24,156	1,874
Public service (n. e. c.) ¹	30,127	2,137	7,253	30,416	50,771	8,851	63,027	1,720	2,796	8,602	53,441	30,860	2,581
Professional service.....	790,631	5,348	5,495	15,806	50,100	20,002	1,152,560	4,944	4,749	28,680	52,818	12,222	617
Domestic and personal service.....	8,301	7,746	12,348	30,430	43,393	5,734	10,862	2,394	7,558	29,074	53,241	7,512	2,376
Clerical occupations.....													

¹ Includes a negligible number of persons of unknown age.
² N. e. c. = Not elsewhere classified.

given by the clerical occupations; among the white girls there were 6 occupational groups above 10 percent each. Among the Negro boys, clerical occupations ranked first with 26 percent, followed by agriculture, forestry, and animal husbandry with 16 percent, while the Negro girls showed, as previously indicated, first place in agriculture, forestry, and animal husbandry with 26 percent. In 1930 the various child group percentages reveal decreases in both races, the white girls furnishing only 3 occupational groups above 10 percent.

The year 1920 showed the percentages for the various occupational groups among the middle-aged white workers to fluctuate from 3 percent in transportation and communication (4 percent in clerical occupations) to 29 percent in domestic and personal service; the corresponding range among the Negro workers was from 6 percent in clerical occupations to 20 percent in domestic and personal service. In general, the lapse of 10 years effected increases in the percentages of both races together with changes in the order of the occupational groups. Among the white workers the range became 7 to 35 percent, and among the Negroes, 6 to 31 percent, the upper limit being given, in each instance, by public service.

With respect to the white workers in the old-aged group, 65 years and over, the passage of 10 years resulted in an increase in all percentages; the corresponding changes among the Negro workers were slight decreases in the majority of occupational groups.

RATIO OF OBSERVED PERCENTAGE OF WORKERS IN EACH OCCUPATIONAL
GROUP TO THE EXPECTED OR NORMAL PERCENTAGE

The percentage age distribution of all gainful female workers regardless of occupation but specific for color and census year may be assumed to be the "expected" or "normal" percentage age distribution for each occupational group of the corresponding color and census year. This assumption may be used in the examination of the question of whether there is an excess or dearth of workers in a particular occupational group specific for age, color, and census year. The ratio of an observed percentage to its corresponding normal percentage would indicate, when less than 1, a dearth of workers; when equal to 1, a normal percentage of workers; and when greater than 1, an excess of workers. The percentages constituting the four normal age distributions as defined, specific for color and census year, together with the corresponding observed percentages, are given in table 2.

Reference to the normal age distributions has already been made in the preceding section. The calculated ratios are shown in table 3, and figure 1 presents them graphically. The two broken lines in the figure drawn through 1.00 indicate the expected or normal levels of workers. The bars below or above a broken line show not only the

presence of a dearth or an excess but also the magnitude of such dearth or excess.

TABLE 3.—Ratio by age and color of percentage of gainful female workers in a specified occupational group to the percentage for all groups, 1920 and 1930 (percentages shown in table 2)

Occupational group	Age group, 1920						Age group, 1930					
	10-17	18-19	20-24	25-44	45-64	65 and over	10-17	18-19	20-24	25-44	45-64	65 and over
White												
Agriculture, forestry, animal husbandry.....	2.25	0.55	0.39	0.67	1.76	3.77	3.14	0.65	0.39	0.59	1.77	4.10
Extraction of minerals.....	1.52	1.07	.78	.98	.95	1.09	2.04	1.43	.85	.79	1.08	1.09
Manufacturing and mechanical industries.....	1.51	1.13	.89	.95	.91	.63	1.77	1.29	.92	.93	.89	.76
Transportation and communication.....	1.36	1.89	1.50	.75	.22	.11	1.05	1.59	1.38	.96	.38	.19
Trade.....	.97	1.62	.93	1.11	.88	.50	.85	.95	.82	1.10	1.13	.66
Public service (n. e. c.) ¹.....	.04	.20	.59	1.43	1.66	.96	.04	.04	.39	1.25	2.00	1.43
Professional service.....	.12	.68	1.32	1.24	.84	.50	.10	.53	1.19	1.19	.93	.63
Domestic and personal service.....	.56	.54	.57	1.06	1.90	2.20	.95	.76	.64	.93	1.64	2.02
Clerical occupations.....	.95	1.54	1.51	.63	.26	.09	.68	1.35	1.45	1.04	.37	.11
Negro												
Agriculture, forestry, animal husbandry.....	1.92	1.15	0.91	0.79	0.87	0.91	2.56	1.38	0.92	0.68	0.94	1.18
Extraction of minerals.....	.87	1.32	1.29	1.67	.57	.65	.61	.92	1.04	1.40	.30	.00
Manufacturing and mechanical industries.....	.58	1.20	1.20	1.15	.76	.53	.55	1.07	1.12	1.15	.78	.55
Transportation and communication.....	.39	.95	1.15	1.27	.73	.48	.29	.90	1.03	1.22	.86	.58
Trade.....	.45	1.05	1.09	1.17	.94	.66	.27	.71	.78	1.15	1.28	.80
Public service (n. e. c.) ¹.....	.37	.52	1.06	1.17	1.16	1.06	.18	.45	.53	1.13	1.64	1.10
Professional service.....	.16	1.11	1.89	1.15	.52	.21	.10	.77	1.76	1.12	.65	.26
Domestic and personal service.....	.40	.84	.98	1.13	1.16	1.18	.44	.84	.98	1.11	1.07	1.01
Clerical occupations.....	.58	1.90	1.89	.98	.33	.13	.26	1.23	1.79	1.13	.40	.09

¹ N. e. c. = Not elsewhere classified.

Variability of the ratios in the different age groups.—In passing from age group to age group figure 1 reveals striking differences in the variability of the ratios. A study of table 3 shows that in each census year the most stable age group among the white as well as among the Negro workers is 25-44 years; in the instance of the white workers, this group is followed in increasing order of magnitude, and in both census years, by the age groups 20-24, 18-19, 45-64, 10-17, and 65 and over. The Negro workers show, in general, less variability than the white workers; their age groups, when arranged in increasing order, differ from those of the white workers, and differ, moreover, from each other in the 2 census years. The old-aged group presents the greatest variability among the white workers in both census years, while the child group ranks similarly among the Negro workers in both census years, this phenomenon being influenced principally by agriculture, forestry, and animal husbandry.

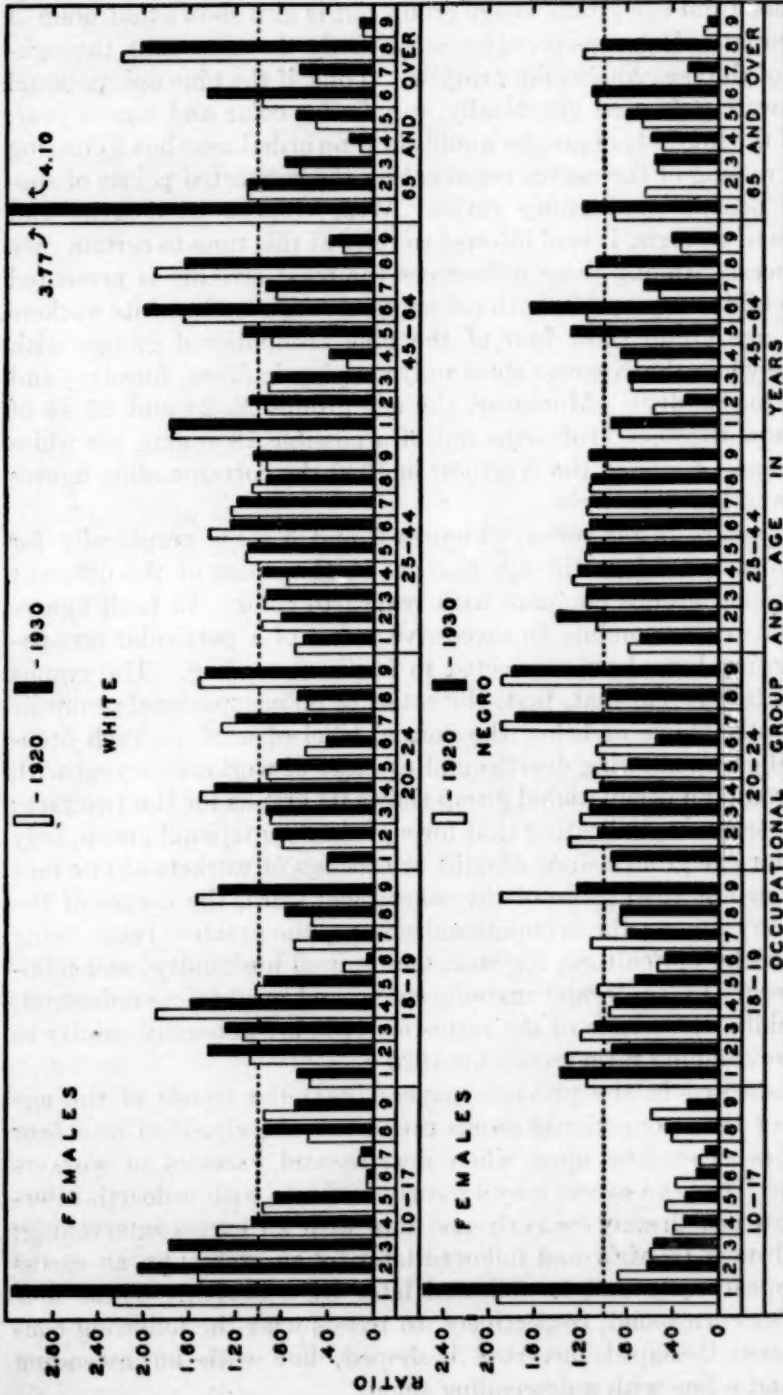


FIGURE 1.—Age-specific ratios of the percentages of gainful white and Negro female workers in different occupational groups to the percentages for all groups, 1920 and 1930. The numbers 1-9 are defined thus: 1, agriculture, forestry, and animal husbandry; 2, extraction of minerals; 3, manufacturing and mechanical industries; 4, transportation and communication; 5, trade; 6, public service (not elsewhere classified); 7, professional service; 8, domestic and personal service; and 9, clerical occupations.

Table 3 not only discloses notable differences in the variability of the ratios from age group to age group but it also shows that none of the occupational groups occupies consistently the same rank throughout all of the age groups under review. Thus, if the nine occupational groups were presented graphically, specific for color and census year, each of the four sets of graphs would show no orderliness but a crossing and recrossing of the curves representing the connected points of successive occupational group ratios. With respect to dearths and excesses of workers, it is of interest to refer at this time to certain race differences. Among these differences the most striking is presented by the child group, and in both census years. Thus, the white workers of this age group show four of the nine occupational groups with excesses while the Negroes show only one (agriculture, forestry, and animal husbandry). Moreover, the age groups 20-24 and 25-44 of 1920 show together 11 dearths out of a possible 18 among the white workers and 4 among the Negroes; in 1930 the corresponding figures are 11 and 5, respectively.

Age changes in the ratios.—Figures 2 and 3 show graphically for each census year how the age changes in the ratios of the different occupational groups compare with regard to color. In both figures the points corresponding to successive ratios of a particular occupational group have been connected to facilitate reading. The graphs immediately reveal that, first, the ratios of no occupational group lie consistently above or below the normal level of workers, each occupational group showing dearths and excesses of workers varying with age; second, no occupational group shows its graphs for the two races entirely separate, indicating that for a given occupational group, only particular age groups show dearths or excesses of workers of one race greater or less than those of the other race; third, the ranges of the ratios vary among the occupational groups, the greatest range being presented by agriculture, forestry, and animal husbandry, and minimum ranges by trade, and manufacturing and mechanical industries; and, finally, the trends of the ratios for 1930 are generally similar to the corresponding ratio trends for 1920.

As indicated in the previous papers (2-4) the trends of the age curves of the occupational group ratios may be classified into four categories depending upon when dearths and excesses of workers appear. Thus, an excess may be early and late with a dearth intervening; a dearth may be early and late with an excess intervening; a dearth may be early and followed later by an excess; or, an excess may appear early and be followed later by a dearth. These four categories correspond, respectively, to trends with the following configurations: U-shaped, inverted U-shaped, line with an ascending slope, and a line with a descending slope.

While the trends of the ratios for 1930 are generally similar to the corresponding ones for 1920, there are three occupational groups that show race differences with respect to ratio trends. The remaining six occupational groups show similar trends for both races.

The three occupational groups showing race differences in the trends of their ratios are extraction of minerals, manufacturing and mechanical industries, and transportation and communication. In these three groups the trends for the Negro workers describe an inverted U, with dearths appearing early and late and excesses intervening. The white workers, on the other hand, present ratios that form a U in the first occupational group, and trends with descending slopes in the second and third groups. The lapse of 10 years in the instance of the white workers in extraction of minerals and in manufacturing and mechanical industries effected an increase in the early excesses. The total number of reported Negroes in extraction of minerals in 1930 was 53, and hence the ratios derived from this figure must be accepted with some caution. While the ratios for the white workers in transportation and communication describe a descending trend, the excess for the child group is the smallest of all ratios, showing excesses in this occupational group. The situation is notably different among the white workers in manufacturing and mechanical industries where the maximum excess appears in the child group.

The remaining six occupational groups show similar trends for both races. These six groups are agriculture, forestry, and animal husbandry, trade, public service, professional service, domestic and personal service, and clerical occupations.

Agriculture, forestry, and animal husbandry, as in the instance of the males, may be assigned to the U category, recognizing at the same time the slight dearth among the Negroes in the age group 65 years and over. The passage of 10 years effected an increase in the excesses at both ends of the age scale, while the slight dearth among the Negroes became an excess.

Trade, professional service, and clerical occupations describe the inverted U, with dearths appearing early and late and excesses intervening. Notable race differences are the larger dearths among the Negroes of the child group in trade, and the larger excesses among the Negroes of age group 20-24 years in professional service and clerical occupations.

Public service, and domestic and personal service disclose increasing trends with age, a slight dearth appearing among the white workers of the old-aged group in public service. Noteworthy race differences in public service are the larger excesses among the white workers in the older age groups. Changes in this occupational group effected

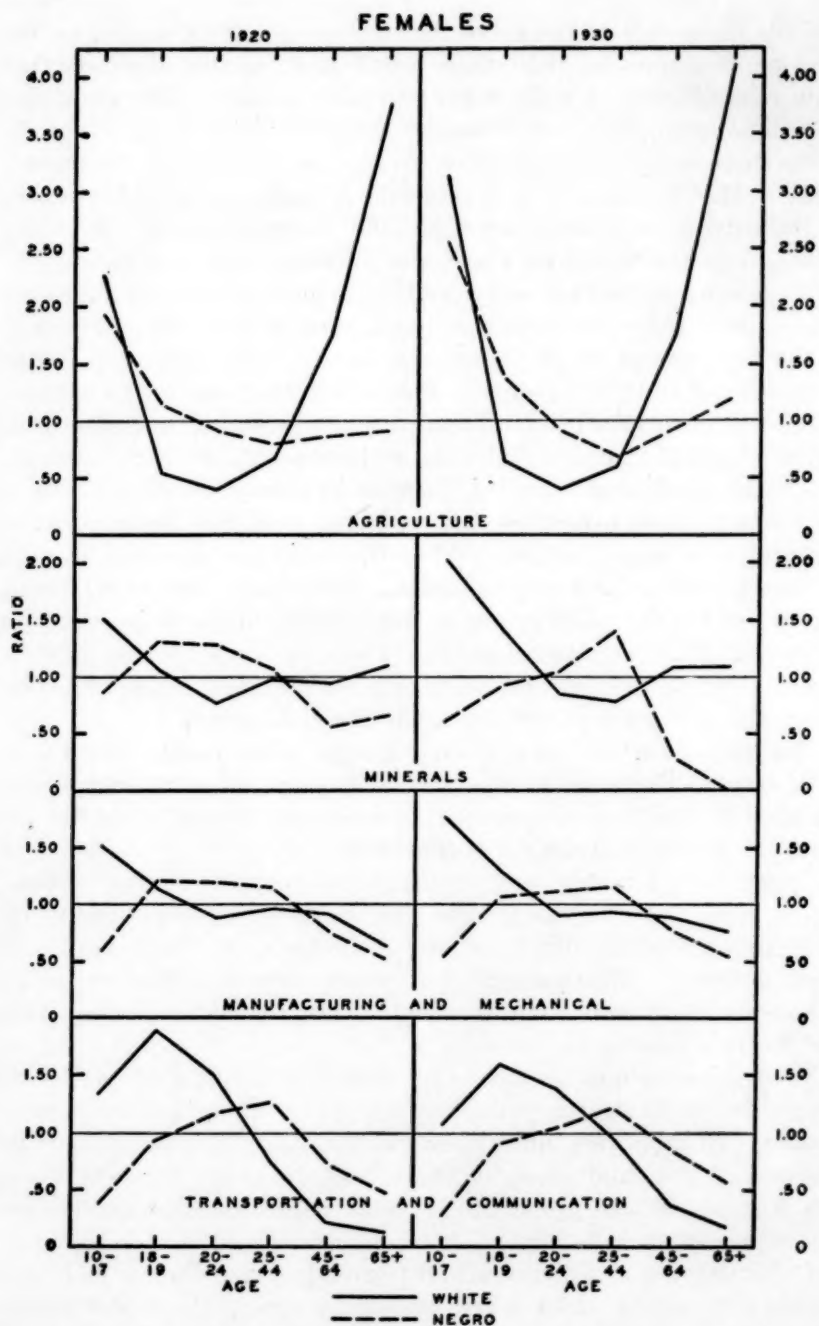


FIGURE 2.—Age-specific ratios of the percentages of gainful white and Negro female workers in different occupational groups to the percentages for all groups, 1920 and 1930; white and Negro female workers in specific occupational groups compared. (*Agriculture, forestry, and animal husbandry is abbreviated agriculture, while extraction of minerals reads minerals.* Points are joined by straight lines to facilitate reading.)

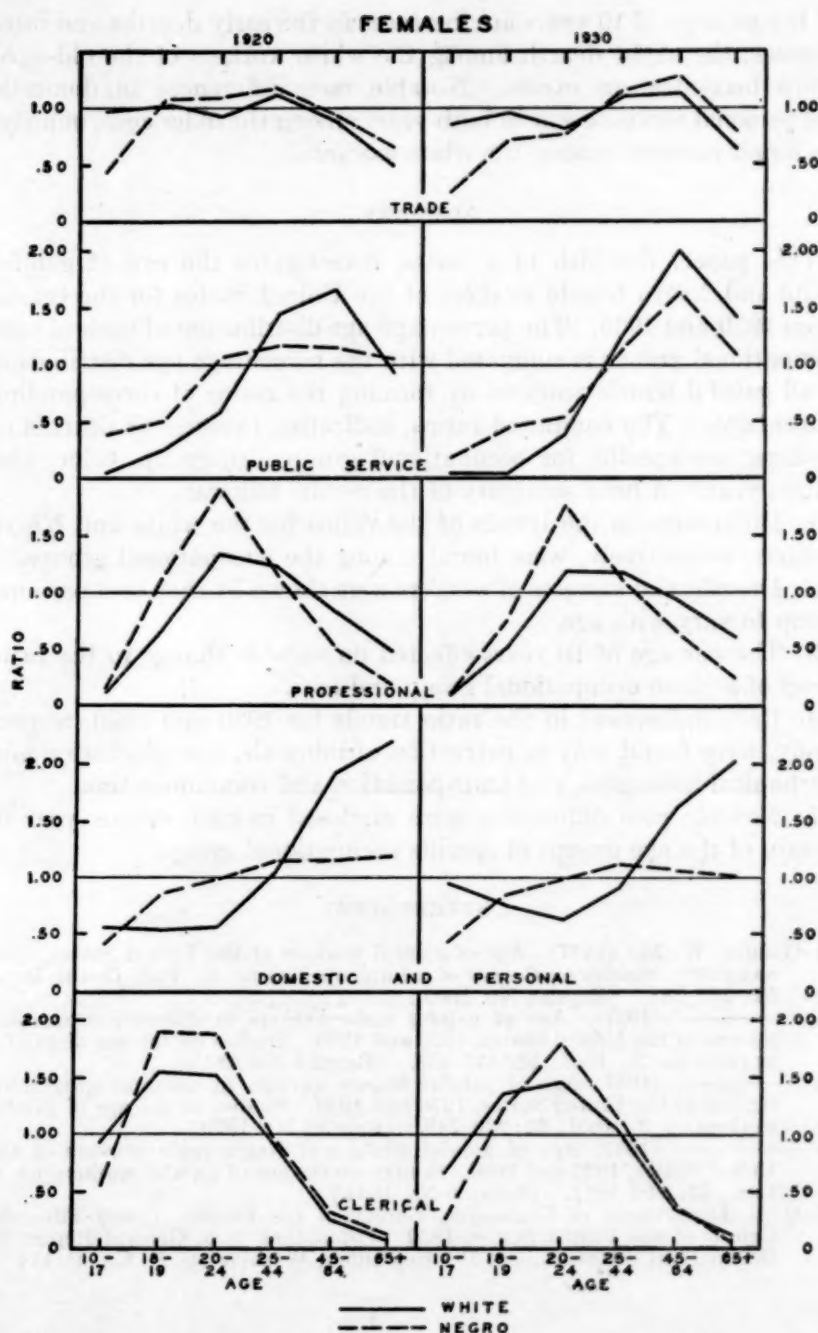


FIGURE 3.—Age-specific ratios of the percentages of gainful white and Negro female workers in different occupational groups to the percentages for all groups, 1920 and 1930; white and Negro female workers in specific occupational groups compared. (Points are joined by straight lines to facilitate reading.)

by the passage of 10 years are increases in the early dearths and later excesses, the slight dearth among the white workers of the old-aged group becoming an excess. Notable race differences in domestic and personal service occur in both years among the older ages, namely, the larger excesses among the white workers.

SUMMARY

This paper, the fifth of a series, investigates the age of gainful white and Negro female workers of the United States for the census years 1920 and 1930. The percentage age distribution of each of nine occupational groups is compared with the percentage age distribution of all gainful female workers by forming the ratios of corresponding percentages. The computed ratios, indicating excesses or dearths of workers, are specific for occupational group, age group, color, and census year. A brief summary of the results follows:

1. Differences in the trends of the ratios for the white and Negro workers, respectively, were found among the occupational groups.
2. Dearths and excesses of workers were shown by each occupational group to vary with age.
3. The passage of 10 years effected no notable change in the ratio trend of a given occupational group and race.
4. Race differences in the ratio trends for 1920 and 1930, respectively, were found only in extraction of minerals, manufacturing and mechanical industries, and transportation and communication.
5. Notable race differences were disclosed in each census year in certain of the age groups of specific occupational groups.

REFERENCES

- (1) Gafafer, W. M.: (1937) Age of gainful workers of the United States, 1920 and 1930. Studies on the age of gainful workers no. 1. Pub. Health Rep., 52: 269-281. (Reprint No. 1806.)
- (2) ———: (1937) Age of gainful male workers in different geographic regions of the United States, 1920 and 1930. Studies on the age of gainful workers no. 2. Ibid., 52: 437-453. (Reprint No. 1815.)
- (3) ———: (1937) Age of gainful female workers in different geographic regions of the United States, 1920 and 1930. Studies on the age of gainful workers no. 3. Ibid., 52: 730-748. (Reprint No. 1829.)
- (4) ———: (1937) Age of gainful white and Negro male workers of the United States, 1920 and 1930. Studies on the age of gainful workers no. 4. Ibid., 52: 999-1011. (Reprint No. 1841.)
- (5) U. S. Department of Commerce, Bureau of the Census: (1933) Fifteenth Census of the United States, 1930. Population, v. 5, General Report on Occupations. Government Printing Office, Washington, D. C. P. 114.

A STUDY OF THE VARIATIONS IN REPORTS ON HOSPITAL FACILITIES AND THEIR USE

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and EMILY HANKLA, *United States Public Health Service*

Facilities represented by a hospital have been for many years an essential element in medical care, but they are now assuming increasing importance in programs of community health service. Because of this broadening base, hospital superintendents, practicing physicians, health officials, and persons concerned with community-service institutions all have occasion to consult data bearing on the existence of hospital facilities, their use, and the costs of operation. The items of information commonly used in expressing hospital accommodations and utilization are bed capacity, number of patients admitted, average daily census, and number of out-patient visits. These also constitute the bases for computing many of the unit costs of operation. For some time persons interested in hospital statistics and cost accounting have suspected that there must be some confusion in terms used by those responsible for the administrative records of hospitals, since data on facilities and use from similar hospitals were not comparable, and the reports of individual hospitals failed to check from year to year. The nature and extent of the discrepancies, however, were not fully understood. In an effort to clear up these points, the several national agencies concerned with collection of hospital statistics joined in requesting that the Public Health Service conduct an inquiry into the matter. It so happened that the information desired by all agencies was of particular interest to the Public Health Service, since the Service at the time was charged with conducting that part of the 1935 Census of American Business which pertained to hospitals.

The national agencies which normally compile hospital statistics kindly agreed to the use of their basic data. Surveys then in progress and others that had recently been completed furnished additional opportunities for securing from the same group of hospitals corresponding schedules which were suitable for comparative analysis. Random samples were selected from reports received by five of the agencies and matched, for each group in turn, with schedules from the sixth which were used as a basis for measuring the extent of variation. These five groups of reports and the agencies which received them are herein designated by the letters A, B, C, D, and E, and the sixth is known as the basic group or agency. The number of hospitals represented in study groups A, B, C, D, and E were 654, 304, 329, 701, and 379, respectively.

¹ From the Division of Public Health Methods, National Institute of Health. Study conducted in connection with National Health Inventory.

The proportion of hospitals reporting with marked variations, the comparative amounts of discrepancies, and the effects of these differences on the totals were studied. Reports showing variations of less than 10 units per 100 in terms of the figures supplied by the basic agency were regarded as reasonably consistent. Differences of 10 to 19 and of 20 or more per 100 in reporting each item to the respective agencies were used in the first comparison. For the next, the average variation per 100 units reported to the basic agency was computed for each group of hospitals. In these computations the differences between the figures shown in comparative schedules from individual hospitals, without regard to whether they represented deficiencies or excesses, were summed and divided by the total units reported to the basic agency. A third comparison was made, by using ratios, of the total number of units for all hospitals combined, that is, beds, patients, or out-patient visits reported to the lettered agency and to the basic agency.

Comparisons for the total study were made of averages derived from figures on variation for the different groups of hospitals.

VARIATIONS BETWEEN HOSPITAL REPORTS FOR SPECIFIC ITEMS

BED CAPACITY

It was discovered that in figures on bed capacity 20 percent of the reports selected for comparison showed variations of 10 or more per 100 and that 10 percent showed variations of 20 or more. The extent of these differences by groups is shown in table 1. Although in the questionnaires sent out by agency D, hospitals were specifically requested to enter the same figures which slightly earlier had been given to the basic agency, about 13 percent of the reports in the D group varied more than 10, and 4 percent varied more than 20 beds per 100. For the five groups, the average divergence per 100 beds was about 7.

TABLE 1.—Variations in bed capacity as reported to agencies A, B, C, D, and E and to a basic agency, portrayed by (1) percentage of hospital reports showing specified variations, (2) average variations per 100 hospital units, and (3) ratio between the total beds reported

Reporting group	Percent of hospital reports showing specified variations		Average variations per 100 beds	Ratio between total beds reported
	10 to 19 beds per 100	20 or more beds per 100		
A.....	15	19	15	1.07
B.....	11	10	6	1.01
C.....	7	7	3	.98
D.....	9	4	6	1.00
E.....	10	8	6	.98
Average.....	10	10	7	1.01

Reports from mental and from tuberculosis hospitals were characterized by similarities both in the nature and in the extent of variations. Other types of special hospitals resembled general hospitals in these respects, whereas infirmary units of institutions were in a class by themselves. Consistency in reporting bed capacity appeared most frequently in the schedules from hospitals for mental and tuberculosis patients. The greatest variation, on the other hand, was evidenced by hospital units of institutions, which showed, for each 100 beds reported to the basic agency, an average discrepancy of 66. It is probable that at some times all beds in the institution were included, and at others, only those in the infirmary. For instance, a particular home for the aged and infirm reported to one agency 700 beds and to another 2,120.

Proprietary hospitals, including those owned by individuals, partners, and corporations unrestricted as to profit, were more often inconsistent in reporting bed capacity than were hospitals under control of voluntary nonprofit organizations or governmental agencies. This may have resulted in part from the fact that small hospitals predominated in the proprietary group.

Since it is commonly assumed that large hospitals are likely to be provided with better bookkeeping facilities and are more accustomed to making reports than small, it might also be expected that they would supply more consistent figures. The findings tend to support this assumption. In the groups under consideration, hospitals with less than 25 beds were responsible for the most frequent discrepancies in bed capacity, variations beyond the limit set for consistent reports occurring in more than one-third of the comparative entries. A distinct increase in agreement of reporting occurred in the hospitals with from 25 to 100 beds; further increase in agreement was found among those having 100 to 200, and slightly more between hospitals having 200 to 250 beds. Consistency did not, on the whole, however, become more evident in hospitals of over 250 beds. It seems possible that the effects of increases in bookkeeping efficiency which were apparent in hospitals of considerable size were nullified by the wide discrepancies in the reports of a few large institutions.

There appears to have been, in many instances, uncertainty in defining the terms "beds", "bassinets", and "cribs." Although the questionnaires differed in that those sent out by agencies C, D, and E requested the numbers of both beds and bassinets while those sent out by A and B omitted bassinets, each contained the specification that cribs should be included and bassinets excluded in entering bed capacity. Apparently, however, doubt still existed regarding distinctions to be made. It was found that 10 percent of the hospitals in group A and 6 percent in group B reported, on these questionnaires,

bed capacities exactly equal to the sum of the bed and bassinet capacities reported to the basic agency.

While, as the foregoing discussion brings out, there is frequent and often wide divergence in reports on bed capacity by given hospitals to two agencies, the sum of the beds reported by a large group of hospitals may not vary to any considerable degree. A negative variation in one hospital report will frequently balance a positive variation in another. In the present instances, the ratios between the total numbers of beds reported by each group of hospitals to the agency designated by letter and to the basic agency averaged 1.01. It seems, therefore, that these figures would furnish satisfactory bases for comparisons of large groups of hospitals or for indicating general relationships. For calculations concerned with individual hospitals or with small, specialized groups, they cannot be recommended.

AVERAGE DAILY CENSUS

Greater discrepancies were shown in the reports on average daily census (total patient-days divided by 365) than in those on bed capacity. As is shown in table 2, the figures submitted by 37 percent of the hospitals contained variations of 10 or more per 100.

TABLE 2.—*Variations in average daily census as reported to agencies A, B, C, D, and E and to a basic agency, portrayed by (1) percentage of hospital reports showing specified variations, (2) average variations per 100 hospital units, and (3) ratio between the total daily census reported*

Reporting group	Percent of hospital reports showing specified variations		Average variations per 100 patients	Ratio between total average daily census reported
	10 to 19 patients per 100	20 or more patients per 100		
A	19	24	15	1.11
B	22	16	15	1.04
C	19	18	6	1.03
D	16	13	4	.99
E	23	12	7	1.00
Average	20	17	9	1.03

Mental and tuberculosis hospitals, which were on the whole more consistent than hospitals of other medical types in reporting bed capacity, were, comparatively speaking, less variable in regard to average daily census. Apparently a rapid turnover, such as occurs in general and special hospitals, may develop variances in determining the number of patients per day. Such estimates may be influenced by differences in counting days of admission and departure. The largest variations in reporting average daily census were found in schedules received from the hospital units of institutions. To cite an extreme case, an infirmary reported almost 10 times as high a number

to one agency as to another. The average difference between comparative reports on daily census was 81 for each 100 patients.

Governmental hospitals were, of the several administrative types, most consistent in reporting daily census to each of the agencies. Their relatively large number of long-term patients may have been a contributing factor. Schedules from hospitals of the proprietary types exhibited the most marked differences in reports on this item. These are the hospitals with a rapid turnover.

The reporting of average daily census more than that of any other item was influenced by the size of the hospital. The proportion of comparative entries showing a satisfactory degree of consistency increased from about 40 percent for hospitals with 25 or fewer beds to about 80 percent for hospitals with more than 250 beds.

It should be noted that addition of the average daily census as reported by individual hospitals to companion agencies resulted in totals with an average ratio of 1.03. Presumably, these totals should be sufficiently accurate to be used in general comparisons involving large groups of hospitals.

PATIENTS ADMITTED

Total number of patients admitted to hospitals during the period under consideration was reported to four study groups as is shown in table 3. Variations of 10 or more patients per 100 were found in the numbers furnished by 47 percent of the hospitals, while the average divergence on this item was 12.

TABLE 3.—Variations in total number of patients admitted as reported to agencies A, B, C, and E and to a basic agency, portrayed by (1) percentage of hospital reports showing specified variations, (2) average variations per 100 hospital units, and (3) ratio between the total patients reported

Reporting group	Percent of hospital reports showing specified variations		Average variations per 100 patients	Ratio between total patients reported
	10 to 19 patients per 100	20 or more patients per 100		
A.....	18	32	18	1.11
B.....	21	14	10	.99
C.....	26	26	6	1.05
E.....	25	25	14	1.08
Average.....	23	24	12	1.06

General and special hospitals reported relatively similar figures for total number of patients far more frequently than did mental hospitals or the hospitals connected with institutions. In hospitals of the latter types, a variation of 20 patients or more per 100 occurred in the reports of three-fifths of these hospitals, while 14 reported over five times as many patients to agency A as to the basic agency. The wording of

the questionnaires sent out by these two agencies and by agency B was almost identical. All asked for total patients admitted excluding infants and out-patients. The A and B blanks, however, were accompanied by instructions which specified that patients admitted should include those in the hospital on the first day of the report period. Agency E asked for the total patients treated. Since, according to the data received by the basic agency, the average daily census for mental and tuberculosis hospitals was often higher than the total number of patients admitted during a year, it seems probable that in many cases only the new patients were reported to this organization. A considerable degree of variability in the reports on number of patients is thus explained, as frequently those on roll at the beginning of the year constitute a major proportion of the total patients served.

Differences in questionnaires, however, do not by any means completely account for the variation in reporting number of patients, for while the larger number was given more frequently to one of the others than to the basic agency, this was not always true. About a third of the hospitals in each group reported fewer patients to the agency which specified that all patients treated be included than to the basic agency which asked for patients admitted.

Institutional hospitals, which also have a high carry-over of patients from one year to the next, afford an additional chance for inconsistent reporting. In some instances only patients given medical examination or treatment in the infirmary are reported; in others all residents of the institution are included. In fact, for a certain orphanage 20 times as many patients admitted were entered in the schedule of the basic agency as in that of agency B.

With such differences existing in the reports from mental, tuberculosis, and institutional hospitals, a majority of which are under governmental supervision, it is not surprising that more frequent and pronounced variations in number of patients were found in combined reports from governmental hospitals than in those from proprietary or nonprofit hospitals.

Hospitals with less than 200 beds seem to have been, on the whole, considerably more consistent in reporting total number of patients to agencies used for comparison than were the larger ones. The latter group was weighted with mental and institutional hospitals.

Some consolation for the hospital statistician was found in the fact that the ratios between the totals reported to the lettered agencies and to the basic agency averaged about 1.06, thus indicating that comparative analyses involving total numbers of patients for large groups of hospitals may be made with relative safety.

OUT-PATIENT VISITS²

Variations of 10 or more visits per 100 from the basic agency figures were found in almost half of the out-patient visit reports furnished by two of the lettered agencies, C and D (see table 4). Those from hospitals classified as general and special showed a higher average rate of consistency than those from hospitals for mental or tuberculosis patients. The data did not indicate that size or type of administrative control of the hospital influenced variations.

TABLE 4.—Variations in number of out-patient visits as reported to agencies C and D and to a basic agency, portrayed by (1) percentage of hospital reports showing specified variations, (2) average variations per 100 hospital units, and (3) ratio between the total out-patient visits reported

Reporting group	Percent of hospital reports showing specified variations		Average variations per 100 visits	Ratio between total out-patient visits reported
	10 to 19 visits per 100	20 or more visits per 100		
C.....	17	30	5	0.98
D.....	14	25	8	1.00
Average.....	15	27	6	.99

Neither of the terms "out-patient" nor "out-patient visit" has a well-defined connotation in hospital statistics. In some institutions it seems that the term "out-patient" is used to describe all visits to the hospital by ambulatory patients; at other places it is applied solely to attendance at an organized out-patient department. Hospitals of very small size frequently exist as adjuncts to the regular practice of the physician-superintendents, whose offices are in the same building. Under such circumstances, office calls may be entered in the out-patient classification. Certain small hospitals reporting remarkably large numbers of out-patient visits were found to be including under that heading all calls made by staff physicians to patients in their homes.

Even where an organized out-patient department exists, there is a definite chance for differences in interpretation of terminology involved. In some large hospitals, follow-up clinics, separate from the out-patient departments, take care of patients who require attention after leaving the hospital. Recipients of this type of ambulatory service may or may not be included as out-patients. An additional source of discrepancy is represented by the patient who, during a single trip to the out-patient department, is served in several clinics, thus making possible a count of one or of several visits.

² Out-patient data were submitted by 2 lettered agencies and by the basic agency.

COMPARISON OF GROUPS

Inspection of the foregoing tables shows that the highest percentage of variation in entering all items was evidenced by hospitals reporting to agency A. It so happens that hospitals reporting to this agency differed, as a class, from those in the other groups by being smaller, more often proprietary in control, and more frequently institutional in character.

REPORT PERIOD

Time periods covered by reports to be compared were not always identical; neither were they sufficiently divergent to allow for appreciable changes in hospital capacity or occupancy. No constant relationship could be discovered between coincidence of report period and consistency of reports.

SUMMARY

A growing interest in hospital statistics, especially those which relate to the existence and use of facilities, has brought into relief discrepancies between the figures assembled by several national agencies. It was, therefore, suggested by the agencies that the United States Public Health Service conduct an inquiry into the magnitude and nature of these differences. According to common agreement, inquiry was confined to four basic items of administrative importance; namely, bed capacity, number of patients admitted, average daily census, and number of out-patient visits.

The item reported with the most consistency was bed capacity; yet in the figures submitted by one-fifth of the hospitals, there were found differences of 10 or more beds per 100. Uncertainty in the use of the terms "beds", "bassinets", and "cribs" seemed to encourage discrepancies. Variations in average daily census of at least 10 patients per 100 were shown by more than a third of the hospitals, while equal discrepancies occurred in about half of the reports on total number of patients admitted. In many cases only new admissions were reported to one agency while patients remaining in the hospital at the beginning of the report period and new patients admitted during the period were included in the total given to the other agency. Inconsistencies of 10 or more per 100 occurred in nearly half of the reports on out-patient visits.

Institutional hospitals were especially variable in reporting all items. It seems likely that, in some instances, the infirmary beds or patients were given, and in others all beds or inmates of the institution. Hospitals for mental and for tuberculosis patients sent in more constant figures on bed capacity and daily census than hospitals with a higher patient turn-over. In reporting number of patients, however, these hospitals showed a high degree of variation which seemed to

result, in part at least, from different practices with regard to inclusion of patients who were in the hospital at the beginning of the report period.

There was some evidence to suggest that where other factors are similar large hospitals are more likely than small ones to report consistently and that, on the whole, this tendency increased with size.

It would appear from the relationships indicated by these data that an important cause of inconsistencies in reports is uncertainty in the use of terms. Uniform definitions would eliminate much perplexity both on the part of hospitals in preparing reports and on the part of agencies in analyzing the data. The use of uniform definitions would also enable one agency to use the data of another and thus reduce the number of requests for information.

Mere agreement among the agencies in the type of schedule does not insure uniform interpretation by the hospitals. Wide variations were shown in the reporting of items which were requested in the same words by different agencies. It is necessary that complete and uniform instructions be given to hospitals, and that administrators observe these instructions in detail.

At the present time, because of inconsistencies that have been revealed by this analysis of hospital data, conclusions regarding the existence and use of facilities are likely to be well founded only when based on totals for large groups of institutions. Comparisons between hospitals had better await the development of greater consistency than that which now obtains in their reports. Because of this variability in base, the same caution is equally applicable regarding the use of data bearing on capital investment and operating costs.

DEATHS DURING WEEK ENDED DECEMBER 18, 1937

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Dec. 18, 1937	Correspond- ing week, 1936
Data from 86 large cities in the United States:		
Total deaths.....	8,846	9,247
Average for 3 prior years.....	6,641	
Total deaths, first 50 weeks of year.....	428,436	429,921
Deaths under 1 year of age.....	515	559
Average for 3 prior years.....	549	
Deaths under 1 year of age, first 50 weeks of year.....	27,388	27,661
Data from industrial insurance companies:		
Policies in force.....	69,081,599	68,924,487
Number of death claims.....	12,650	13,208
Death claims per 1,000 policies in force, annual rate.....	9.4	10.0
Death claims per 1,000 policies, first 50 weeks of year, annual rate.....	9.7	9.7

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

In these and the following tables a zero (0) is to be interpreted to mean that no cases or deaths occurred, while leaders (.....) indicate that cases or deaths may have occurred although none was reported.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 25, 1937, and Dec. 26, 1936

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936
New England States:								
Maine.....		3		6	22	21	1	0
New Hampshire.....					27	2	1	0
Vermont.....		1			138		0	0
Massachusetts.....	7	4			68	438	0	0
Rhode Island.....					3	28	0	0
Connecticut.....	6	1		4	4	119	1	1
Middle Atlantic States:								
New York.....	23	23	16	136	71	160	5	8
New Jersey.....	5	7	6	10	319	119	0	1
Pennsylvania.....	26	12			3,090	9	6	0
East North Central States:								
Ohio.....	18	20	9	4	395	16	5	4
Indiana.....	24	19	31	93	44	7	0	5
Illinois.....	40	30	19	164	1,030	7	8	4
Michigan.....	11	17	1	4	254	29	1	0
Wisconsin.....	1	18	35	116	103	30	0	2
West North Central States:								
Minnesota.....	3	5			3	8	0	3
Iowa.....	4	4	5	28	9	1	2	1
Missouri.....	22	19	60	50	746	2	1	1
North Dakota.....		2	1				0	0
South Dakota.....				1		1	0	0
Nebraska.....	2	2			2	2	0	0
Kansas.....	10	3	4	1	59	7	2	0
South Atlantic States:								
Delaware.....		3			3	52	0	0
Maryland.....	12	21	12	14	5	77	3	2
District of Columbia.....	5	5	5	1	8	5	0	2
Virginia.....	30	23			77	38	3	1
West Virginia.....	11	24	44	47	122	20	2	5
North Carolina.....	21	30	7	14	242	5	1	1
South Carolina.....	3	10	95	206	7	15	0	0
Georgia.....	17	24		86			0	2
Florida.....	14	8	6		30	1	2	3
East South Central States:								
Kentucky.....	7	13	16	15	94	17	8	8
Tennessee.....	9	28	50	45	187	21	2	1
Alabama.....	27	23	170	53	19	2	9	1
Mississippi.....	5	6					3	2

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended Dec. 25, 1937, and Dec. 26, 1936—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936
West South Central States:								
Arkansas.....	5	7	38	35	50	3	0	2
Louisiana.....	6	13	50	7	2	2	2	1
Oklahoma.....	23	11	149	98	9	5	4	3
Texas.....	50	67	403	756	77	137	4	5
Mountain States:								
Montana.....		1		35	4	2	0	0
Idaho.....	1		1	5	13	63	0	1
Wyoming.....					1		0	1
Colorado.....	11	4			73	5	0	0
New Mexico.....	3		4	6	78	22	0	0
Arizona.....	2	2	76	78		4	0	0
Utah.....	4				38	4	1	0
Pacific States:								
Washington.....	5	3			19	16	0	0
Oregon.....			71	25	10	3	1	1
California.....	26	43	35	45	26	19	3	3
Total.....	499	568	1,499	2,088	7,581	1,544	81	75
51 weeks of year.....	27,196	28,079	290,164	156,037	291,343	281,582	5,307	7,262

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937
New England States:									
Maine.....	0	0	8	19	0	0	1	1	11
New Hampshire.....	0	0	8	4	0	0	0	0	1
Vermont.....	0	0	2	8	0	0	0	0	31
Massachusetts.....	0	0	193	153	0	0	1	1	83
Rhode Island.....	0	0	28	5	0	0	0	0	18
Connecticut.....	0	0	76	49	0	0	0	0	20
Middle Atlantic States:									
New York.....	0	0	350	402	0	21	4	5	240
New Jersey.....	0	0	47	71	0	0	1	0	77
Pennsylvania.....	1	0	387	85	0	0	16	3	245
East North Central States:									
Ohio.....	0	0	204	215	4	5	1	5	43
Indiana.....	0	0	126	128	55	5	3	1	18
Illinois.....	0	1	509	327	35	0	1	0	46
Michigan.....	0	1	344	301	2	0	2	7	114
Wisconsin.....	0	0	141	258	16	7	1	0	146
West North Central States:									
Minnesota.....	3	0	93	114	17	8	1	3	19
Iowa.....	0	0	228	102	38	7	0	4	22
Missouri.....	1	0	174	104	26	9	5	6	32
North Dakota.....	0	0	22	60	5	13	0	2	23
South Dakota.....	1	0	15	62	2	5	0	0	2
Nebraska.....	1	0	27	46	1	10	0	0	10
Kansas.....	1	0	132	234	8	6	1	1	31
South Atlantic States:									
Delaware.....	0	0	16	8	0	0	0	0	3
Maryland.....	0	0	46	59	0	6	3	4	57
District of Columbia.....	0	0	8	12	0	0	1	1	3
Virginia.....	0	1	35	26	0	0	6	5	87
West Virginia.....	1	0	61	63	1	0	3	7	40
North Carolina.....	0	0	36	31	0	0	1	2	127
South Carolina.....	0	0	2	8	0	0	4	0	6
Georgia.....	1	1	18	20	0	0	1	5	8
Florida.....	0	1		1	0	0	3	0	9

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 25, 1937, and Dec. 26, 1936—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937	Week ended Dec. 26, 1936	Week ended Dec. 25, 1937
East South Central States:									
Kentucky.....	0	0	60	58	14	0	0	2	15
Tennessee.....	1	3	32	38	0	0	1	11	23
Alabama ¹	1	1	23	15	1	0	9	7	35
Mississippi ²	5	0	3	10	2	0	1	0	-----
West South Central States:									
Arkansas.....	0	1	6	16	1	0	0	1	13
Louisiana.....	2	1	7	12	0	0	6	2	14
Oklahoma ⁴	2	3	70	36	1	0	2	5	20
Texas.....	2	3	113	112	5	3	12	13	178
Mountain States:									
Montana.....	0	0	24	39	21	16	1	0	39
Idaho.....	1	0	18	26	24	3	1	0	13
Wyoming.....	0	0	4	6	3	0	0	0	11
Colorado.....	0	0	51	24	9	1	1	0	8
New Mexico.....	0	0	32	17	0	0	0	10	20
Arizona.....	0	0	9	8	0	0	0	0	13
Utah ³	0	0	62	8	2	0	0	0	5
Pacific States:									
Washington.....	1	0	49	80	17	4	1	1	64
Oregon.....	0	0	32	27	6	18	2	0	28
California.....	0	4	140	214	11	11	6	8	220
Total.....	25	21	4, 137	3, 721	321	152	103	123	2, 286
51 weeks of year.....	9, 416	4, 473	218, 448	227, 903	10, 765	7, 296	14, 930	14, 510	-----

¹ New York City only.

² Week ended earlier than Saturday.

³ Typhus fever, week ended Dec. 25, 1937, 25 cases, as follows: South Carolina, 1; Georgia, 12; Florida, 2; Alabama, 10.

⁴ Figures for 1936 exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Mala- ria	Mea- sles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>October 1937</i>										
Puerto Rico.....	2	54	95	4, 449	61	-----	0	0	0	37
<i>November 1937</i>										
Illinois.....	11	206	63	19	1, 364	1	26	1, 589	37	41
Kansas.....	2	50	8	-----	77	-----	4	482	8	5
Maryland.....	13	98	24	1	29	1	1	310	0	23
Montana.....	1	5	180	-----	57	-----	-----	123	99	8
Nevada.....	-----	-----	5	-----	4	-----	1	15	0	0
New Mexico.....	-----	27	6	3	190	1	3	111	0	33
North Dakota.....	1	3	-----	-----	10	-----	1	166	75	2
Oklahoma.....	6	118	143	75	9	3	8	275	11	56
Oregon.....	1	28	88	-----	42	-----	11	104	54	4
Rhode Island.....	2	6	-----	-----	8	-----	3	114	0	1
South Dakota.....	1	12	9	-----	9	-----	6	105	27	6
Texas.....	5	233	860	862	104	65	16	412	9	170
Virginia.....	17	188	300	6	226	5	3	166	0	23
Washington.....	4	17	13	-----	96	-----	13	157	82	19

Summary of monthly reports from States—Continued

October 1937		November 1937		November 1937	
Puerto Rico:	Cases	German measles:	Cases	Septic sore throat—Contd.	Cases
Chicken pox.....	30	Illinois.....	40	New Mexico.....	2
Dysentery.....	28	Kansas.....	11	North Dakota.....	1
Filaria.....	3	Maryland.....	4	Oklahoma.....	15
Mumps.....	6	Montana.....	7	Oregon.....	6
Puerperal septicemia.....	6	New Mexico.....	1	Rhode Island.....	10
Tetanus.....	5	Rhode Island.....	5	South Dakota.....	1
Tetanus, infantile.....	3	Washington.....	14	Virginia.....	30
Whooping cough.....	80	Impetigo contagiosa:		Washington.....	1
November 1937		Illinois.....	12	Tetanus:	
Botulism:		Maryland.....	50	Illinois.....	4
New Mexico.....	14	Montana.....	16	New Mexico.....	1
Chicken pox:		Oregon.....	113	Oklahoma.....	1
Illinois.....	1,796	Washington.....	11	Trachoma:	
Kansas.....	733	Jaundice, infectious:		Illinois.....	3
Maryland.....	416	Oregon.....	17	Maryland.....	1
Montana.....	246	Milk sickness:		Montana.....	8
Nevada.....	34	Illinois.....	10	Oklahoma.....	6
New Mexico.....	55	Mumps:		South Dakota.....	1
North Dakota.....	141	Illinois.....	313	Washington.....	7
Oklahoma.....	112	Kansas.....	119	Tularaemia:	
Oregon.....	233	Maryland.....	26	Illinois.....	3
Rhode Island.....	110	Montana.....	39	Kansas.....	2
South Dakota.....	182	Nevada.....	21	Maryland.....	2
Texas.....	189	New Mexico.....	22	Montana.....	1
Virginia.....	258	North Dakota.....	2	Nevada.....	1
Washington.....	670	Oklahoma.....	12	Oregon.....	1
Conjunctivitis:		Oregon.....	42	Texas.....	5
Oklahoma.....	4	Rhode Island.....	16	Virginia.....	3
Dengue:		South Dakota.....	14	Typhus fever:	
Texas.....	12	Texas.....	30	Texas.....	25
Diarrhea:		Virginia.....	69	Virginia.....	3
Maryland.....	11	Washington.....	474	Undulant fever:	
New Mexico (enteritis included).....	22	Ophthalmia neonatorum:		Illinois.....	10
Dysentery:		Illinois.....	8	Kansas.....	3
Illinois (amoebic).....	2	Maryland.....	1	Maryland.....	3
Illinois (bacillary).....	57	Montana.....	1	Oklahoma.....	113
Maryland (bacillary).....	14	New Mexico.....	1	Rhode Island.....	2
Montana.....	1	Oklahoma.....	3	Texas.....	16
New Mexico (amoebic).....	1	Virginia.....	1	Virginia.....	2
New Mexico (bacillary).....	2	Paratyphoid fever:		Washington.....	4
New Mexico (unspecified).....	9	Illinois.....	4	Vincent's infection:	
Oklahoma.....	1	Kansas.....	4	Illinois.....	11
Oregon.....	1	Maryland.....	1	Kansas.....	6
Rhode Island (bacillary).....	1	Texas.....	5	Maryland.....	12
Texas (amoebic).....	1	Puerperal septicemia:		Montana.....	1
Texas (bacillary).....	72	New Mexico.....	2	North Dakota.....	3
Virginia (diarrhea included).....	27	Rabies in animals:		Oklahoma.....	8
Washington (amoebic).....	2	Illinois.....	35	Oregon.....	12
Washington (bacillary).....	3	Oregon.....	3	South Dakota.....	1
Encephalitis, epidemic or lethargic:		Washington.....	10	Whooping cough:	
Illinois.....	10	Rabies in man:		Illinois.....	369
Maryland.....	2	Illinois.....	1	Kansas.....	267
Montana.....	1	Scabies:		Maryland.....	324
Rhode Island.....	1	Kansas.....	2	Montana.....	99
South Dakota.....	1	Maryland.....	2	New Mexico.....	216
Texas.....	4	Montana.....	5	North Dakota.....	42
Washington.....	2	Oregon.....	117	Oklahoma.....	423
		Septic sore throat:		Oregon.....	112
		Illinois.....	10	Rhode Island.....	150
		Kansas.....	2	South Dakota.....	106
		Maryland.....	4	Texas.....	611
		Montana.....	13	Virginia.....	232
				Washington.....	350

WEEKLY REPORTS FROM CITIES

City reports for week ended Dec. 18, 1937

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diph- theria cases	Influenza		Mea- sles cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities: 5-year average.....	260	1,057	115	979	824	1,417	11	369	30	917	-----
Current week ¹	165	239	70	2,097	753	1,177	30	339	26	912	-----
Maine:											
Portland.....	0	1	0	0	2	1	0	0	0	7	20
New Hampshire:											
Concord.....	0	-----	0	28	1	0	0	0	0	4	7
Manchester.....	0	-----	0	0	3	0	0	0	0	0	11
Nashua.....	0	-----	0	1	0	1	0	0	0	0	5
Vermont:											
Barre.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Burlington.....	0	-----	0	0	0	0	0	0	1	3	6
Rutland.....	0	-----	0	1	0	0	0	0	0	0	10
Massachusetts:											
Boston.....	0	-----	1	22	19	58	0	7	6	11	217
Fall River.....	0	-----	0	0	9	2	0	3	0	52	35
Springfield.....	0	-----	0	1	1	4	0	2	0	21	25
Worcester.....	0	-----	0	0	6	5	0	2	0	11	51
Rhode Island:											
Pawtucket.....	0	-----	0	0	0	5	0	0	0	0	12
Providence.....	0	-----	0	1	6	19	0	2	0	26	75
Connecticut:											
Bridgeport.....	0	-----	0	0	4	14	0	2	0	0	38
Hartford.....	0	-----	0	2	1	6	0	0	0	8	56
New Haven.....	0	-----	0	0	0	0	0	0	0	2	41
New York:											
Buffalo.....	0	-----	0	3	11	15	0	7	0	13	147
New York.....	41	10	5	23	89	132	0	77	2	140	1,422
Rochester.....	0	-----	0	0	4	6	0	0	0	1	70
Syracuse.....	0	-----	0	0	4	11	0	1	1	10	45
New Jersey:											
Camden.....	1	-----	0	3	2	6	0	1	0	0	34
Newark.....	0	3	1	4	15	15	0	3	0	32	85
Trenton.....	0	-----	0	171	2	4	0	2	0	2	39
Pennsylvania:											
Philadelphia.....	3	6	6	38	31	94	0	22	3	45	462
Pittsburgh.....	4	6	3	331	31	47	0	10	0	27	217
Reading.....	0	-----	0	0	0	4	0	0	0	1	19
Scranton.....	2	-----	-----	13	-----	3	0	-----	0	2	-----
Ohio:											
Cincinnati.....	3	-----	3	2	17	16	0	2	0	6	140
Cleveland.....	1	17	1	108	22	33	0	7	0	29	209
Columbus.....	2	-----	0	6	6	7	0	3	0	3	72
Toledo.....	0	3	2	43	9	8	0	4	0	7	71
Indiana:											
Anderson.....	0	-----	0	0	2	6	0	0	0	0	13
Fort Wayne.....	2	-----	0	1	4	1	0	0	0	0	30
Indianapolis.....	3	-----	1	2	21	15	0	4	0	4	134
Muncie.....	0	-----	0	2	3	2	0	0	0	0	12
South Bend.....	0	-----	0	0	9	3	0	0	0	0	19
Terre Haute.....	0	-----	0	1	0	1	0	0	0	0	27
Illinois:											
Alton.....	0	-----	0	22	0	4	0	0	0	0	5
Chicago.....	11	18	3	261	55	164	0	42	0	25	722
Elgin.....	1	-----	0	0	1	10	0	0	0	3	13
Moline.....	0	-----	0	15	1	20	0	0	0	3	3
Springfield.....	0	-----	0	2	3	9	2	0	0	2	19
Michigan:											
Detroit.....	7	1	0	118	35	108	0	12	2	41	313
Flint.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Grand Rapids.....	0	-----	0	1	5	32	0	1	0	8	38
Wisconsin:											
Kenosha.....	0	-----	0	3	0	4	0	0	0	0	4
Madison.....	0	-----	0	0	1	0	0	0	0	1	19
Milwaukee.....	0	1	1	118	12	13	0	2	0	14	127
Racine.....	0	-----	0	3	0	4	0	0	0	2	12
Superior.....	0	-----	0	0	0	1	0	0	0	0	7

¹ Figures for Barre, Vt., and Flint, Mich., estimated; reports not received.

City reports for week ended Dec. 18, 1937—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth.....	0		0	0	2	4	0	1	0	13	10
Minneapolis.....	0		0	0	6	10	0	0	0	2	112
St. Paul.....	0		0	0	2	9	14	1	0	3	43
Iowa:											
Cedar Rapids.....	0			2		0	0		0	3	
Davenport.....	1			0		3	0		0	0	
Des Moines.....	2			0		27	1		0	0	39
Sioux City.....	0			0		1	0		0	0	
Waterloo.....	0			1	0	4	0		0	2	
Missouri:											
Kansas City.....	1		0	7	11	12	0	3	1	2	102
St. Joseph.....	2		0	0	3	2	0	0	0	0	41
St. Louis.....	10		1	598	13	40	2	2	0	3	211
North Dakota:											
Fargo.....	0		0	0	2	1	0	0	0	5	9
Grand Forks.....	0			0		2	0		0	0	
Minot.....	0		0	0	0	0	0	0	0	5	8
South Dakota:											
Aberdeen.....	0			0		3	0		0	8	
Nebraska:											
Lincoln.....	1		0	0	0	1	0	0	0	0	23
Omaha.....	0		0	0	4	2	0	0	0	0	49
Kansas:											
Lawrence.....	0	1	0	0	1	0	0	0	0	3	5
Topeka.....	0		0	0	3	2	0	0	0	10	28
Wichita.....	0		0	0	2	3	0	1	0	3	16
Delaware:											
Wilmington.....	0		0	0	5	5	0	0	0	1	31
Maryland:											
Baltimore.....	17	11	2	2	21	21	0	10	1	47	220
Cumberland.....	0		0	0	2	0	0	0	0	2	12
Frederick.....	0		0	0	0	0	0	0	0	0	1
Dist. of Columbia:											
Washington.....	10		0	6	9	16	0	10	0	10	180
Virginia:											
Lynchburg.....	1		0	0	5	1	0	0	0	1	13
Norfolk.....	0		2	1	10	8	0	0	0	1	38
Richmond.....	1		1	0	8	7	0	2	0	0	63
Roanoke.....	0		0	1	0	1	0	1	0	0	20
West Virginia:											
Charleston.....	1	5	1	3	11	2	0	1	2	0	40
Huntington.....	0		0	9		1	0		0	0	
Wheeling.....	0		0	1	2	5	0	0	0	3	16
North Carolina:											
Gastonia.....	0			0		0	0		0	1	
Raleigh.....	0		0	0	1	1	0		0	20	12
Wilmington.....	1		0	0	2	0	0	0	0	3	16
Winston-Salem.....	1		0	0	6	4	0	0	0	11	24
South Carolina:											
Charleston.....	0	57	1	2	5	5	0	0	1	0	26
Florence.....	0		0	1	2	0	0	1	0	0	16
Greenville.....	0		0	0	0	1	0	0	0	3	1
Georgia:											
Atlanta.....	0	37	4	34	12	9	0	4	0	5	112
Brunswick.....	0		0	0	1	0	0	0	0	0	5
Savannah.....	0	4	2	0	6	0	0	1	0	0	43
Florida:											
Miami.....	3	2	2	24	5	0	0	1	0	1	43
Tampa.....	4	1	0	2	3	3	0	2	0	0	25
Kentucky:											
Covington.....	1		0	0	3	4	0	1	0	0	22
Louisville.....	1	3	2	26	17	17	0	3	0	11	119
Tennessee:											
Knoxville.....	0		2	0	4	1	0	3	0	1	31
Memphis.....	1		2	87	7	11	0	3	0	2	85
Nashville.....	0		0	0	5	2	0	2	0	2	62
Alabama:											
Birmingham.....	0	28	4	9	10	2	0	5	0	0	81
Mobile.....	0		0	0	5	3	0	0	0	0	27
Montgomery.....	2	2		0		1	0		0	1	
Arkansas:											
Fort Smith.....	0			0		4	0		0	0	
Little Rock.....	1		0	25	1	4	0	2	0	0	

City reports for week ended Dec. 18, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Louisiana:											
Lake Charles.....	2		0	0	0	0	0	0	0	0	3
New Orleans.....	17	15	7	1	18	7	0	15	0	10	178
Shreveport.....	0		1	0	9	2	0	3	0	0	43
Oklahoma:											
Muskogee.....	1			0		1	0		0	0	
Oklahoma City.....	0		0	0	2	0	0	2	0	0	42
Tulsa.....	4			0		7	3		0	18	
Texas:											
Dallas.....	3	2	2	0	15	7	0	5	0	2	77
Fort Worth.....	2		1	0	7	6	0	1	0	0	44
Galveston.....	0		0	0	3	1	0	0	0	0	16
Houston.....	2		2	0	15	1	0	8	0	0	96
San Antonio.....	0		6	0	10	0	0	4	2	4	77
Montana:											
Billings.....	0		0	0	2	0	0	0	0	0	10
Great Falls.....	0		0	0	2	1	2	0	0	15	10
Helena.....	0		0	0	0	1	0	0	0	5	4
Missoula.....	0		0	0	4	2	0	0	0	0	12
Idaho:											
Boise.....	0		0	0	1	0	4	0	0	0	9
Colorado:											
Colorado Springs.....	0		0	1	0	5	0	4	0	0	13
Denver.....	5		0	52	10	17	0	3	2	4	91
Pueblo.....	0		0	0	0	2	1	0	1	3	9
New Mexico:											
Albuquerque.....	0		0	38	1	1	0	4	0	1	13
Utah:											
Salt Lake City.....	0		3	1	7	17	0	1	0	0	51
Washington:											
Seattle.....	0		1	0	8	5	0	5	0	20	95
Spokane.....	0		0	0	3	3	1	1	0	9	36
Tacoma.....	0		0	0	3	5	4	1	0	13	34
Oregon:											
Portland.....	2	1	0	4	5	25	0	1	1	0	85
Salem.....	0	3		0		2	0		0	0	
California:											
Los Angeles.....	8	12	3	9	23	26	0	20	2	23	358
Sacramento.....	0		0	2	2	0	0	3	0	25	23
San Francisco.....	0	4	2	1	12	9	0	5	0	59	166

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Rhode Island:				Maryland:			
Providence.....	2	0	0	Baltimore.....	0	0	1
New York:				Kentucky:			
Buffalo.....	2	1	0	Louisville.....	1	0	0
New York.....	4	2	0	Alabama:			
Pennsylvania:				Birmingham.....	4	0	0
Philadelphia.....	2	0	0	Louisiana:			
Ohio:				New Orleans.....	0	0	1
Cincinnati.....	2	0	0	Shreveport.....	0	2	0
Columbus.....	1	2	0	Oklahoma:			
Illinois:				Oklahoma City.....	0	1	0
Chicago.....	6	0	0	Colorado:			
Michigan:				Pueblo.....	2	0	0
Detroit.....	1	0	0	Oregon:			
Missouri:				Portland.....	0	0	1
Kansas City.....	1	0	0	California:			
Kansas:				San Francisco.....	1	0	0
Wichita.....	0	0	1				

Encephalitis, epidemic or lethargic.—Cases: New York, 3; Chicago, 1, Baltimore, 1.

Pellagra.—Cases: Charleston, S. C., 5; Atlanta, 3.

Typhus fever.—Cases: Atlanta, 1; Savannah, 2.

FOREIGN AND INSULAR

CANADA

Vital statistics—Second quarter 1937.—The Bureau of Statistics of the Dominion of Canada has published the following preliminary statistics for the second quarter of 1937. The rates are computed on an annual basis. There were 20.7 live births per 1,000 population during the second quarter of 1937 and 21.0 per 1,000 population during the second quarter of 1936. The death rate was 9.9 per 1,000 population for the second quarter of 1937 and the same rate for the second quarter of 1936. The infant mortality rate for the second quarter of 1937 was 65 per 1,000 live births and the same rate in the corresponding quarter of 1936. The maternal death rate was 5.4 per 1,000 live births for the second quarter of 1937 and 5.7 per 1,000 live births for the same quarter of 1936.

The accompanying tables give the numbers of births, deaths, and marriages by Provinces for the second quarter of 1937, and deaths from certain causes in Canada for the second quarter of 1937 and the corresponding quarter of 1936.

Number of births, deaths, and marriages, second quarter 1937

Province	Live births	Deaths (exclusive of still-births)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada ¹	57,312	27,459	3,737	307	22,773
Prince Edward Island.....	533	308	50	1	144
Nova Scotia.....	3,006	1,428	180	6	967
New Brunswick.....	2,856	1,222	187	15	871
Quebec.....	20,406	8,578	1,674	122	6,963
Ontario.....	15,918	9,310	754	89	8,129
Manitoba.....	3,144	1,402	175	19	1,481
Saskatchewan.....	4,735	1,668	319	20	1,264
Alberta.....	3,897	1,569	264	23	1,375
British Columbia.....	2,817	1,944	134	12	1,579

¹ Exclusive of Yukon and the Northwest Territories.

Cause of death	Canada ¹ (second quarter)		Province, second quarter 1937								
	1936	1937	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents.....	271	351	-----	10	6	85	178	17	12	8	35
Cancer.....	2,891	2,952	28	167	119	711	1,169	170	171	138	279
Diarrhea and enteritis.....	482	479	-----	12	15	284	76	17	37	26	12
Diphtheria.....	47	51	-----	1	2	38	5	2	-----	1	2
Diseases of the arteries.....	2,372	2,406	22	145	86	472	1,121	140	117	127	178
Diseases of the heart.....	4,165	4,152	37	198	149	1,030	1,783	221	205	201	328
Homicides.....	36	30	-----	1	-----	10	11	3	-----	3	2
Influenza.....	830	968	36	64	38	311	288	38	64	95	34
Measles.....	108	226	1	1	4	84	8	7	60	33	28
Nephritis.....	1,655	1,696	23	83	54	767	501	41	67	60	100
Pneumonia.....	1,912	1,918	33	163	119	575	619	93	162	116	98
Poliomyelitis.....	7	14	-----	1	-----	7	2	1	1	2	-----
Puerperal causes.....	331	307	1	6	15	122	89	19	20	23	12
Scarlet fever.....	54	66	-----	3	-----	36	9	3	7	6	2
Smallpox.....	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	1
Suicides.....	256	256	-----	8	9	48	88	22	26	25	30
Tuberculosis.....	1,068	1,871	11	117	112	838	349	112	75	89	168
Typhoid fever and paratyphoid fever.....	61	37	-----	3	3	16	5	2	5	1	2
Whooping cough.....	135	174	2	12	-----	103	24	8	14	10	1
Other violent deaths.....	1,068	1,128	10	58	51	302	381	49	83	75	116

¹ Exclusive of Yukon and the Northwest Territories.

CUBA

Habana—Communicable diseases—4 weeks ended November 20, 1937.—During the 4 weeks ended November 20, 1937, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....	18	-----	Tuberculosis.....	3	1
Malaria.....	¹ 104	2	Typhoid fever.....	¹ 21	6
Scarlet fever.....	1	-----	Undulant fever.....	-----	1

¹ Includes imported cases.

FINLAND

Communicable diseases—November 1937.—During the month of November 1937, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	513	Poliomyelitis.....	22
Dysentery.....	4	Scarlet fever.....	802
Influenza.....	1,858	Typhoid fever.....	40
Lethargic encephalitis.....	1	Undulant fever.....	1
Paratyphoid fever.....	50		

GERMANY

Vital statistics—Second quarter 1937.—Following are vital statistics for Germany for the second quarter of 1937:

Number of marriages.....	167, 912
Number of live births.....	329, 651
Number of live births per 1,000 population.....	19. 4
Number of deaths.....	195, 653
Deaths per 1,000 population.....	11. 5
Deaths under 1 year of age.....	21, 093
Deaths under 1 year of age per 100 live births.....	6. 5

IRISH FREE STATE

Vital statistics—Third quarter ended September 30, 1937.—The following vital statistics for the Irish Free State for the quarter ended September 30, 1937, are taken from the Quarterly Return of Marriages, Births, and Deaths, issued by the Registrar General, and are provisional:

	Number	Rate per 1,000 popu- lation		Number	Rate per 1,000 popu- lation
Marriages.....	4, 194	5. 7	Deaths from—Continued.		
Births.....	14, 987	20. 4	Influenza.....	113	. 15
Total deaths.....	8, 615	11. 7	Measles.....	19	
Deaths under 1 year of age.....	850	1. 57	Puerperal sepsis.....	5	1. 33
Deaths from:			Scarlet fever.....	21	
Cancer.....	882	1. 20	Tuberculosis (all forms).....	810	1. 10
Diarrhea and enteritis (under 2 years).....	203		Typhoid fever.....	20	
Diphtheria.....	49		Whooping cough.....	40	

¹ Per 1,000 births.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for December 31, 1937, pages 1952-1965. Similar cumulative tables will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Cholera

China—Swatow.—During the week ended December 4, 1937, 2 cases of cholera were reported in Swatow, China.

French Indochina.—During the week ended December 18, 1937, cholera was reported in French Indochina, as follows: Annam, 31 cases; Hanoi, 8 cases; Tonkin Province, 82 cases.

Plague

Ecuador—Parroquia Eloy Alfaro.—During the period November 16-30, 1937, 1 case of plague with 1 death was reported in Parroquia Eloy Alfaro, near Guayaquil, Ecuador.

Egypt—Beheira Province.—During the week ended December 18, 1937, 1 case of plague was reported in Beheira Province, Egypt.

Hawaii Territory.—Plague-infected rats have been found in Hawaii Territory, as follows: Island of Hawaii, Hamakua District, Paauiilo—December 4, 2 rats; December 6, 6 rats; December 7, 5 rats; December 8, 1 rat; December 9, 1 rat; December 10–13, 3 rats. Island of Maui, Makawao District, December 7, 1 rat; December 10, 2 rats; December 16, 2 rats.

Smallpox

Mexico.—During the month of October 1937, smallpox was reported in Mexico as follows: Mexico, D. F., 5 cases, 3 deaths; Queretaro, Queretaro State, 1 case, 2 deaths; Jalapa, Vera Cruz State, 1 case.

Southern Rhodesia.—During the period November 4–10, 1937, 100 cases of smallpox were reported in Southern Rhodesia, among the natives.

Typhus Fever

Mexico.—During the month of October 1937, typhus fever was reported in Mexico as follows: Mexico, D. F., 14 cases, 9 deaths; Pachuca, Hidalgo State, 2 cases; Queretaro, Queretaro State, 2 cases; San Luis Potosi, San Luis Potosi State, 4 cases, 1 death; Toluca, Mexico State, 19 cases, 3 deaths.

Yellow Fever

Colombia—Santander Department—Velez.—During the week ended December 11, 1937, 1 death from yellow fever was reported in Velez, Santander Department, Colombia.

Dahomey—Cotonou.—On December 19, 1937, 1 suspected case of yellow fever was reported in Cotonou, Dahomey.

Gold Coast.—On December 16, 1937, yellow fever was reported in Gold Coast, as follows: 1 fatal case in Akuse and 1 fatal case in Ho.

Senegal—Louga.—On December 20, 1937, 1 case of yellow fever was reported in Louga, Senegal.